



Planned Educational Strategies Based on Learning Styles: Case Study PFM Pedagogical-Didactic Induction



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Abstract

The research focuses on the systematization of experience that had as its object the "Pedagogical-Didactic Induction (planning) for teachers of physics and mathematics based on learning styles (theoretical, pragmatic, reflective and active), from the Experimental Science Management project of the Sciences Area of The Mathematics and Physics Specialization Education of the Redesign of the ULEAM, was based on the identification of the didactic strategies based on the class plan according to the learning styles in the students of the Millennium Educational Unit "Eugenio Espejo" in the year 2019. Considered that through class planning based on learning styles with strategies for each teacher, they achieve the quality of education at the time of executing the planning. The objective is to analyze the effectiveness of lesson plans with the four learning styles in physics and mathematics teachers in the second phase of the project's pedagogical induction. As technique for gathering information an interview checklist were applied to the teachers and students who participated in the project and the educational unit. In conclusion, relevant we have the importance of associating the class plan with learning styles helps to contribute greatly to education may increase the ease with which interested parties can locate our article.

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1 Introduction

Educational initiation programs aim to provide an updated reference to the organization to understand the mission and importance of educational work, these are related to the pedagogical induction that is aimed at giving updated reference on the institution to understand its mission and the importance of its educational work (Rumbos, 2009). In Chile there is an induction plan that helps teachers in the training process that aims to accompany and support them from their initial stage when they begin to work as a professional, helping them to learn, practice, this is fundamentally based on research-action (Government of Chile, 2018). Becoming a teacher of excellence is a long process, to achieve this it is essential to attend to teachers in their first years of teaching, teacher professional development policies in Latin America are beginning to pay particular attention to the support needed by teachers who are starting out in teaching, this activity, in the Dominican Republic a program for teacher induction is being developed (Gallego-Domínguez, 2016).

In other territories of Latin America, work is being done on the process of designing a continuous pedagogical training model to establish competencies in university professors, this contains the determination of needs, characteristics, a system of actions, a website with information necessary to pedagogical preparation, it also offers methodological recommendations for the formation of competencies, a distance course and finally focuses on the evaluation of the results once executed (Pérez & Santiago, 2020). In Ecuador, education is in a process of change, such as the Organic Law of Intercultural Education (LOEI) Ministry of Education (2017), here aspects related to education are established where it must be centered on the human being and will guarantee its holistic development, within the framework of respect for human rights, the sustainable environment and democracy; it will be participatory, obligatory, intercultural, democratic, inclusive and diverse, of quality and warmth; it will promote gender equity, justice, solidarity and peace; It will stimulate critical thinking, art and physical culture, individual and community initiative, and the development of skills and abilities to create and work (Whetten et al., 2006; Jones et al., 2007).

For the advancement of science in the country, most of the teachers are based on a traditional education, for this reason they carry out planning based on the learning styles that help to achieve significant learning in the students. The purpose of this paper is to analyze the effectiveness of class plans with the four learning styles in physics and mathematics teachers, due to the fact that the methodology applied is based on a transmissive teaching, taking into account that the styles become in a habitual task of the teacher, where the class plan is associated with the learning styles (Pragmatic, Active, Reflective and Theoretical), which lies in the need to coherently organize the activities and their relationship with the objectives that are desired to be achieved. In this way, a guide is established that allows the teacher to be guided and provides a sense of security to the students, in addition to providing a clear sense of purpose and direction to the class as a whole, in such a way that it is focused on demonstrating that the Adequate knowledge of learning styles can contribute significantly to academic performance (Flood & Robinia, 2014; Mohedo & Bújez, 2014).

The investigation starts from the documentary and narrative review method, which give way to the questions to scrutinize its precedents and theoretical foundations that allowed its elaboration, the criteria that supported both the development of the phase for its scope and the development of the educational strategies planned to from learning styles. The analysis instruments used in the research were the in-depth interview, CheckList to teachers, students of the educational unit and participants in the project: Proposal of planned educational strategies based on learning styles. Case study Educational Units of Chone. The study and analysis of the various theories of learning and teaching has been given from daily practice, that is, the necessary theory has been sought from practical experience in the context in which it is developed (Burbank et al., 2006; Milne et al., 2016).

The results shown are from the didactic strategies in class planning based on learning styles, which shows us that there are heterogeneous students with different ways of learning through various strategies in the Millennium Educational Unit "Eugenio Espejo". Aragón et al. (2014), argues that learning styles are defined as the different ways in which an individual can learn; for Alonso, & Gallego (1994), learning styles are the cognitive, affective and physiological traits that serve as relatively stable indicators of how students perceive interactions and respond to their learning environments. Strategies refer to action plans put in place to facilitate learning, often the product of specific instructional and training methods. In this sense, the strategies designed from the basic level of the tool highlight the homogeneous use of certain mental activities. Instead, style is the habitual way of using such learning strategies (Álvarez, 2009). Class planning is a fundamental and indispensable element for the teacher in the full fulfillment of his functions as a mediator and facilitator of the educational process. In practice, this planning becomes a first-order activity for education professionals with a practical and utilitarian sense, being one of the most important tasks for

educators, pointing out orientation, execution and control as essential conditions to direct The teaching-learning process is scientific. In this context, planning is the common thread of the multiple strategies and actions that are developed in the school classroom and outside of it (Reyes, 2017).

The daily planning of classes is the final result of a complex process carried out by the teacher, this begins when the global curricular itinerary that must be taught is determined, it is based on the needs of the students and the official programs. In the area of social sciences of the Universidad Laica Eloy Alfaro de Manabí (ULEAM) and the Chone extension, a research project was developed to propose educational strategies that were planned based on learning styles, where a case study was carried out in the Millennium Educational Unit "Eugenio Mirror" by Chone. The motivation of this research was to analyze the class plans based on the learning styles of the students of the selected Educational Units of the Chone canton to investigate what didactic strategies teachers use to appropriate their contents in the students to strengthen the teaching process learning (Truong, 2016; Demirbas & Demirkan, 2007).

2 Materials and Methods

It was based on the different basic modalities of the investigation, the documentary that it allowed the revision through academic google different sources of information, articles, theses and books implying a coordination of our thought; the narrative was obtained the collection of information with the help of the instruments used, in which it was possible to identify the technical and scientific criteria that allowed a systematic study from personal experience, obtaining results based on planning with learning styles. It was used as an instrument of the in-depth interview, CheckList to the teachers, students of the educational unit and participants in the project, these for all those involved in the investigation (Heidig & Clarebout, 2011; Abrantes et al., 2007).

3 Results and Discussions

Mathematics and physics are subjects that in most of the teaching processes students have difficulties in facing the contents and getting the students to understand and learn the knowledge in a logical way, to get to know the behavior of this aspect in the educational unit under study, a seminar began to assess the behavior of class plans taking into account the four learning styles in physics and mathematics teachers Santaolalla et al. (2017) in the second phase of pedagogical induction. Something that was taken into account in the analyzes carried out were the learning styles in the teaching of mathematics, various authors mostly agree that it is about how the mind processes information or how it is influenced by the perceptions of each individual (Gallego & Nevot, 2007).

In conversation with the researchers, it was possible to understand the philosophy of project and the results that are addressed in this text where some teachers and researchers expressed their ideas, for example that the project is born from an already structured idea that could be from another University project, whose technical and scientific criteria were considered in the stage of didactic planning, authors such as Honey Alonzo were consulted Honey & Mumford (1986), they developed the CHAEDA AND ACRA test were the closest instruments to an objective reality on the change of traditional methodology for teaching based on learning styles, the most outstanding thing in teaching was that they considered 3 moments to obtain, process and communicate the information, they also suggested that the didactic strategies should be treated for each learning style, this was treated through strategic groups, which positively favored student learning.

The Honey-Alonso style questionnaire was used by some authors to discover the psychometric properties of the Argentine version Freiberg-Hoffmann et al. (2020), the study had to provide new analyzes regarding the psychometric properties of the Argentine version of the CHAEA for university students, for which they carried out a confirmatory factor analysis and an internal consistency study in order to add evidence and compare their results obtained by other researchers. The teachers who were aware of the study carried out expressed that it was possible to understand that the plans that were developed were general, so not all students understood the processes taught in the classroom, since there are several styles of students to learn. In this sense, they were based on the micro-curricular plans and the methodological part was adapted, where the didactic strategies that each learning style is treated are included. The activity was carried out through seminars with the authors of the project, which evidenced planning with strategies for the different styles and that for the didactic induction in the design of a micro-curricular planning, several authors and their experience of the teachers of the University for a better learning process. Different aspects were planted, such as

the theoretical foundation in the didactic planning stage for the project, which was already investigated and planned. Figure 1 shows the planning phases (Cantos et al., 2021; Rostovtseva & Nizkodubov, 2020).

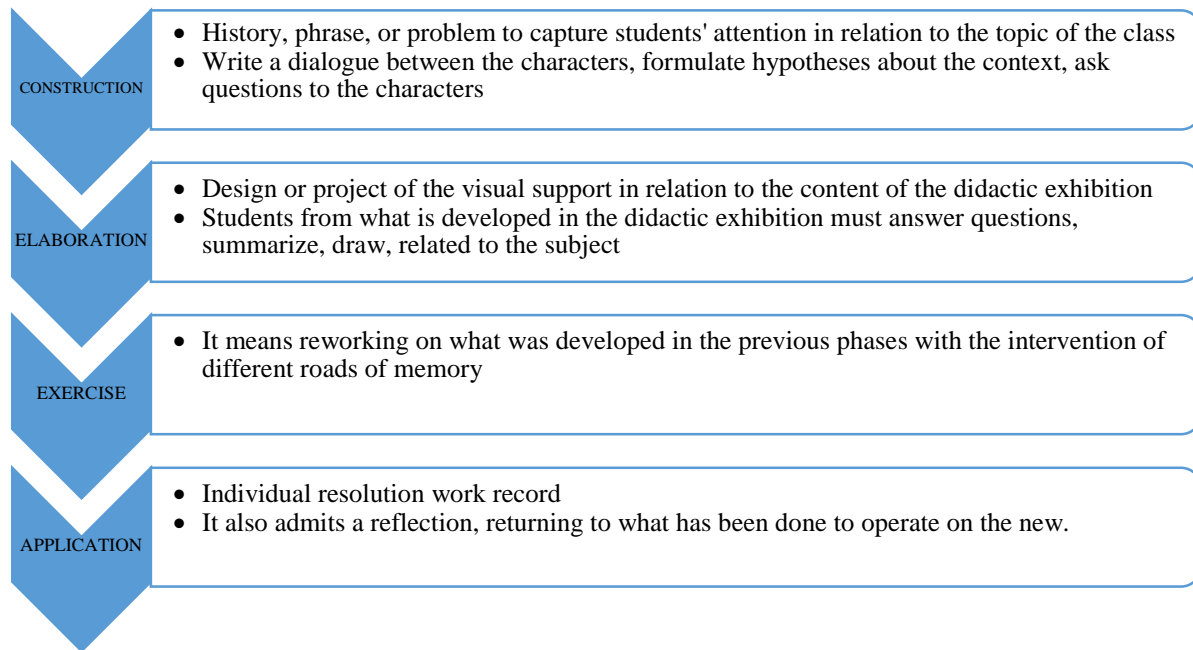


Figure 1. Class planning phases

Source: (Education 3.0, 2018)

It is recommended by the author that together with these four phases it is essential that students self-assess. This research was developed, and the first phase was implemented in the Educational Unit (UE), where there was already a diagnosis based on the 4 learning styles. The topics addressed in relation to didactic planning were specifically with the strategies organized in a class plan for each activity to the determined groups and from them the plans were elaborated, several didactic induction workshops were carried out to design micro-curricular planning, which were between teachers and students of the Experimental Sciences career, for this reason part of the project was applied to them in the different educational units, having the opening in the EU of the Eugenio Espejo Millennium In this environment, the research was carried out supported by the Lord of the school, the director of the mathematics area and students from the second year of high school participated (Montaluisa-Vivas et al., 2019; Tapias & Cué, 2014).

Some participants in the seminar stated that at present it is very difficult to have some degree of support for research and they recommend studying the design, execution and evaluation of planning, so that it improves educational processes in the classroom. Although they also noted that teachers do not discover or are unaware of the causes because in the EU, there are no satisfactory results in students, recommending that the individual differences of each student must be addressed in planning, evoking strategies for each of them and creating groups according to their interests and potential to have better results. The students also participated in the investigation in the learning process where they recommended the application of the different methodologies to work with the students. In the didactic induction seminar, learning styles were considered in such a way that the didactic planning organizes and conducts the teaching and learning processes necessary to achieve the educational objectives, and that in order to address the contents in the execution of the planning, have to start from theory.

Another of the aspects dealt with was the notebooks where information can be found with main and important ideas of the class topics, where it is stated that the content must be socialized with all the students, changing the methodologies and activities to be solved according to the group of students. Students and their learning style, it was also suggested that group tasks meet the objective of increasing the interaction that occurs in students. With the results of the groups of students by style, it was possible to perceive that each person discovers and develops the use of the different media that allow them to process those contents in which they are interested in learning and that through the strategies applied with the different learning styles optimal results were obtained in the tasks within the classroom.

This perception of the problems in the classroom or the way it is perceived, may be linked to the lack of strategies that the teacher, when meeting groups of students, does not propose new situations or ways of teaching, as they encouraged a change of attitude, some students were carried away by the strategies worked by the teacher, not having the appropriate results. In this sense, it is recognized that the UE must emphasize the search for strategies that cause better learning, starting with an education that reaches everyone, that is capable of promoting the styles that students have to learn, strategies that allow to dynamize the processes and raise learning outcomes, without affecting other components of the educational process.

One of the difficulties detected in the seminar in the Millennium EU "Eugenio Espejo" was complicated, it was the lack of methodologies according to the learning styles on the teaching process that was given to them since they came from a context where traditional methodology was used. This deficiency hinders the process of acquiring knowledge because when explaining the subject and its activities to students in a methodical way, it is difficult for them to assimilate the information. When working with a didactic planning with general strategies, not all students are reached equally, some receive the information, others partially and others halfway, and when the work groups are made, problems and discussions are perceived in them, for not being in the same feeling or within the same way of learning, but when working taking into account the style of the students, it is more productive, and they respond with greater criteria and depth.

The applied strategies were attractive for the students, they captured their attention and served to a great extent to help them become interested in learning complex situations and how to solve them, to decipher problems with greater intensity and to solve problems with greater ease, so that mathematics according to Honey Alonso, in learning styles it helps to develop logical thinking, which is very necessary in our daily lives. The results obtained in UE Milenio "Eugenio Espejo" within class planning, a significant difference was achieved in the profile of the student and teacher at the time of teaching and learning using a new methodology in the teaching-learning process within the classroom. of classes with a different reality where the objective of changing from an initial reality where a large part of the students did not know or understand mathematics was met, but through planned strategies based on learning styles where the highest percentage of students understood basic processes of the subject, it was fulfilled (Jiménez, 2021).

Taking into consideration the class plan, it was possible to understand that a great interest was aroused by the new teaching methodology for the mathematics teacher in the "Eugenio Espejo" Millennium Educational Unit, in which it was recommended to implement training in relation to learning styles. That are rooted in the educational trend in a way that exposes the need to teach students (learning to learn), improving learning by highlighting the quality of teaching in education. The importance of associating the class plan with the learning styles (Pragmatic, Active, Reflective and Theoretical) helps to contribute greatly to education, therefore learning is a process that occurs at every moment of life, awakening their interest in learning either in the surrounding environment or in the educational context.

4 Conclusion

With the lived and shared experience within the Milenio "Eugenio Espejo" educational community of the Chone canton, it was interpreted as a result that the application of the interviews served to know the theoretical and scientific bases on which the research project was based on the planning phase (pedagogical-didactic induction), but to go deeper into the educational reality because the teacher works in a general way and does not respond to the styles that the students have, for this reason it was possible to focus a sample, in such a way that positive and relevant aspects could be found in the execution of the class planning using the didactic strategies based on each group, so it is necessary to change the design of micro curricular planning based on the theories of Honey Alonso, since this dynamizes education and projects a more meaningful learning perspective.

Conflict of interest statement

The authors declared that they have no competing interests.

Statement of authorship

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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